506218-02
4/2022
Supersedes 9/2020

D4P120 & D4S SMOKE DETECTOR KITS

INSTALLATION INSTRUCTIONS FOR SMOKE DETECTOR KITS USED WITH KC/KG/KH024-090 & LCM/LGM/LCH/LGH036-074 UNITS

Shipping and Packing List

21Z11; 603408-11
Single-sensor kit contains the following:

1 - Smoke detector sensor
1 - Smoke detector power board
1 - Supply bracket
1 - Supply brace
1 - Return bracket (used on KC, KG & KH units only)
1 - Return brace (used on KC, KG & KH units only)
1 - Power harness
1 - Supply or return air harness
1 - Jumper harness
1 - Metal sampling tube
1 - Plastic exhaust tube
1 - Magnet
1 - Sensor manufacturer's instructions
#10 - 16 X 3/4” sheet metal screws
#8 - 32 X 1” thread-forming screws

21Z12; 603408-12
Dual-sensor kit contains the following:

2 - Smoke detector sensors
1 - Smoke detector power board
1 - Supply bracket
1 - Supply brace
1 - Return bracket (used on KC, KG & KH units only)
1 - Return brace (used on KC, KG & KH units only)
1 - Power harness
1 - Supply and return air harness
2 - Metal sampling tubes
2 - Plastic exhaust tubes
2 - Magnets
1 - Sensor manufacturer's instructions
#10 - 16 X 3/4” sheet metal screws
#8 - 32 X 1” thread-forming screws

Application

LCM, LGM, LCH and LGH Units -- Smoke detector will send a 24Vac signal to the unit controller when smoke is sensed. Unit controller default mode will de-energize unit.

KC, KG and KH Units -- Smoke detector will interrupt the 24Vac signal to the unit control circuit when smoke is sensed. Unit will be de-energized.

Identify Harnesses

Three harnesses are provided in the single sensor kit and two harnesses are provided in the dual sensor kit. Use wire labels, length of harnesses and number and size of connectors to determine appropriate harnesses used in each application. Refer to figure 1 for 53W78 single sensor kits and figure 2 for 54W79 dual sensor kits.

Installation

⚠WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional installer, service agency or the gas supplier.

⚠CAUTION

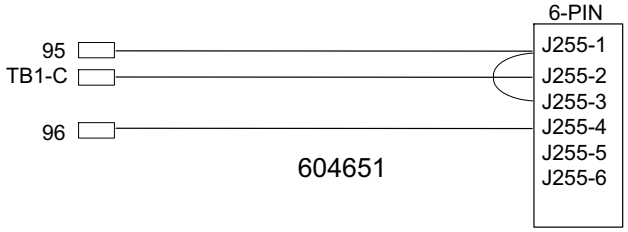
Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch.

⚠CAUTION

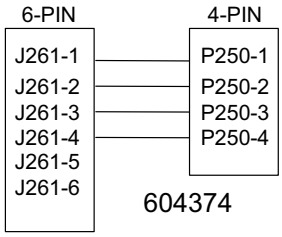
Danger of sharp metallic edges. Can cause injury. Take care when servicing unit to avoid accidental contact with sharp edges.

HARNESS IDENTIFICATION (not to scale)
53W78 SINGLE SENSOR KITS
(SUPPLY AIR ONLY OR RETURN AIR ONLY APPLICATIONS)

POWER HARNESS - 2 FT. IN LENGTH
Used in KG/KC/KH applications.
Discard in LGM/LCM/LGH/LCH applications.



JUMPER HARNESS - 4" IN LENGTH
Used in LGM/LCM/LGH/LCH supply air only applications.
Discard harness in other applications.



SUPPLY OR RETURN AIR HARNESS - APPROX. 10 FT. IN LENGTH
Use this harness in unit return air only AND KG/KC/KH supply air only applications.
Discard in LGM/LCM/LGH/LCH applications; harness is provided in unit.

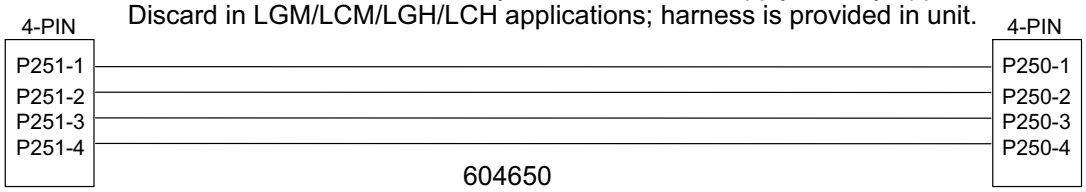
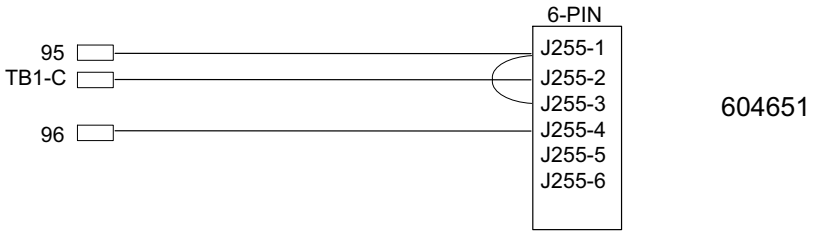


FIGURE 1

HARNESS IDENTIFICATION (not to scale)
53W79 DUAL SENSOR KITS
(COMBINATION SUPPLY AIR AND RETURN AIR APPLICATIONS)

POWER HARNESS - 2 FT. IN LENGTH
Used in all KG/KC/KH unit applications.
Discard in all LGM/LCM/LGH/LCH unit applications.



SUPPLY AND RETURN AIR HARNESS - 4 CONNECTORS
Used in all dual sensor applications.

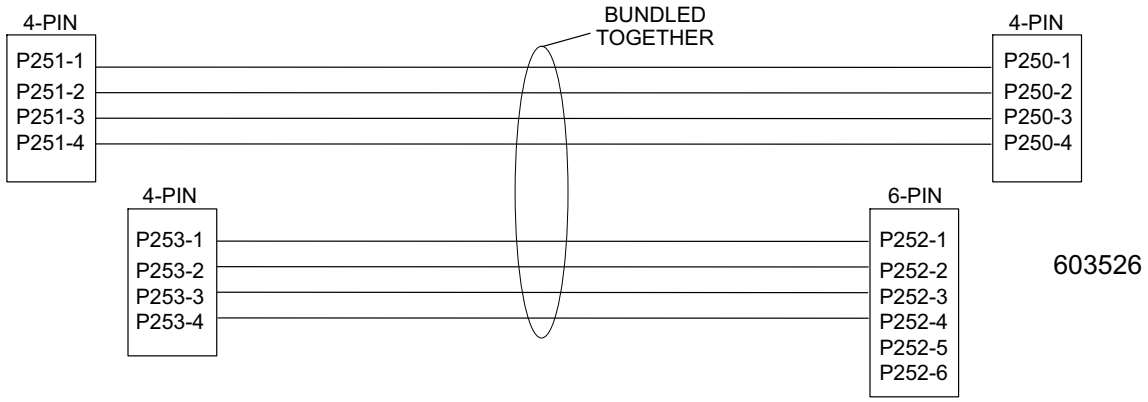


FIGURE 2

Installation - continued

Smoke detector sensor and power board installation

Use manufacturer's instructions provided with smoke detector to install sensor(s) and power board. Refer to figure 3 for location of power board, supply air sensor and return air sensor on units with an economizer. For location of return air sensor on units without an economizer, refer to figure 4 for KC, KG and KH units, and figure 5 for LCM, LGM, LCH and LGH units.

Sampling tube installation

1 - Slide metal sampling tube onto the back side of the sensor as shown in figure 6. When sensor is installed in return air applications, slide plastic exhaust tube onto back side of the sensor as shown in figure 6. ***NOTE - Plastic exhaust tube is NOT used in supply air applications and should be discarded.***

2 - Orient sampling tube so that holes point toward the air stream.

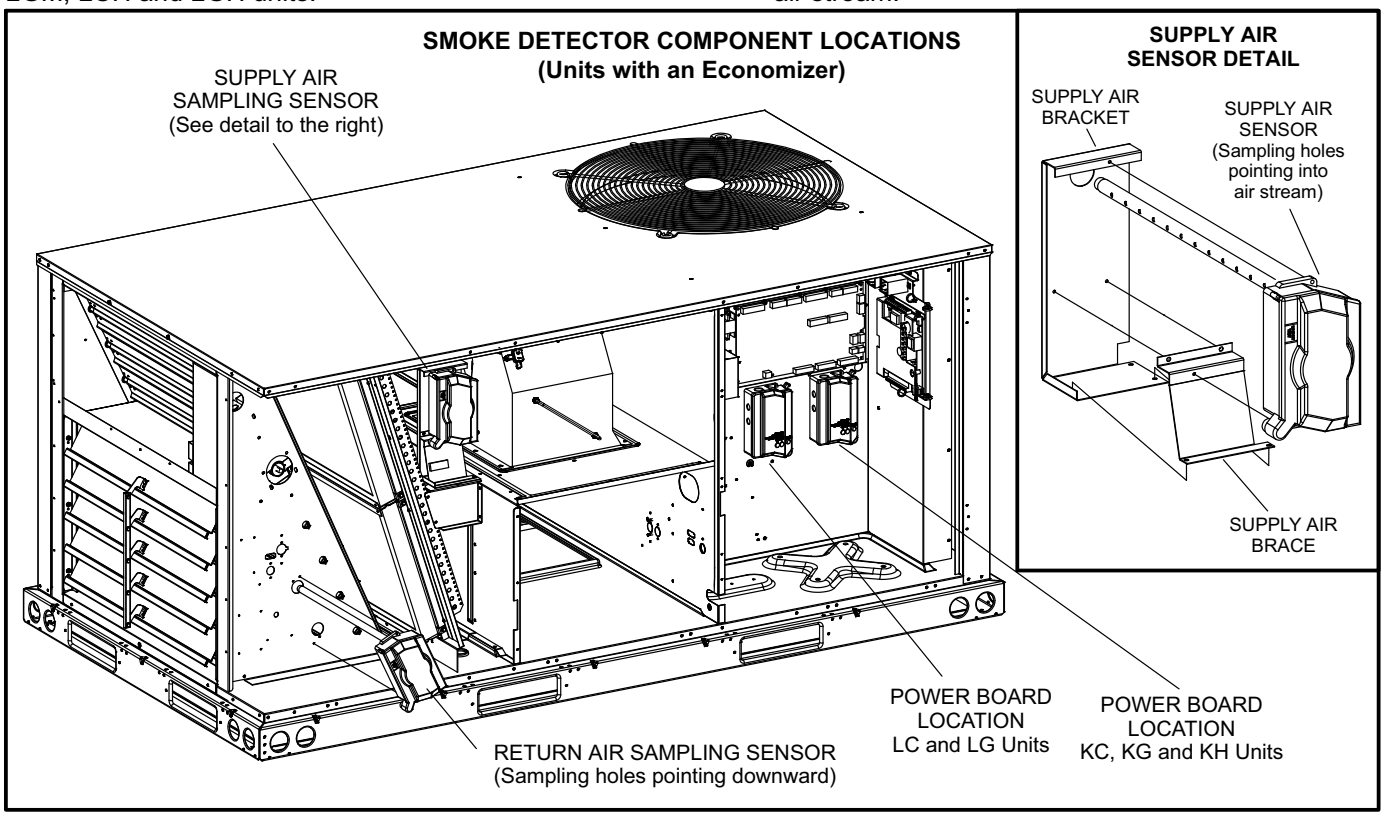


FIGURE 3

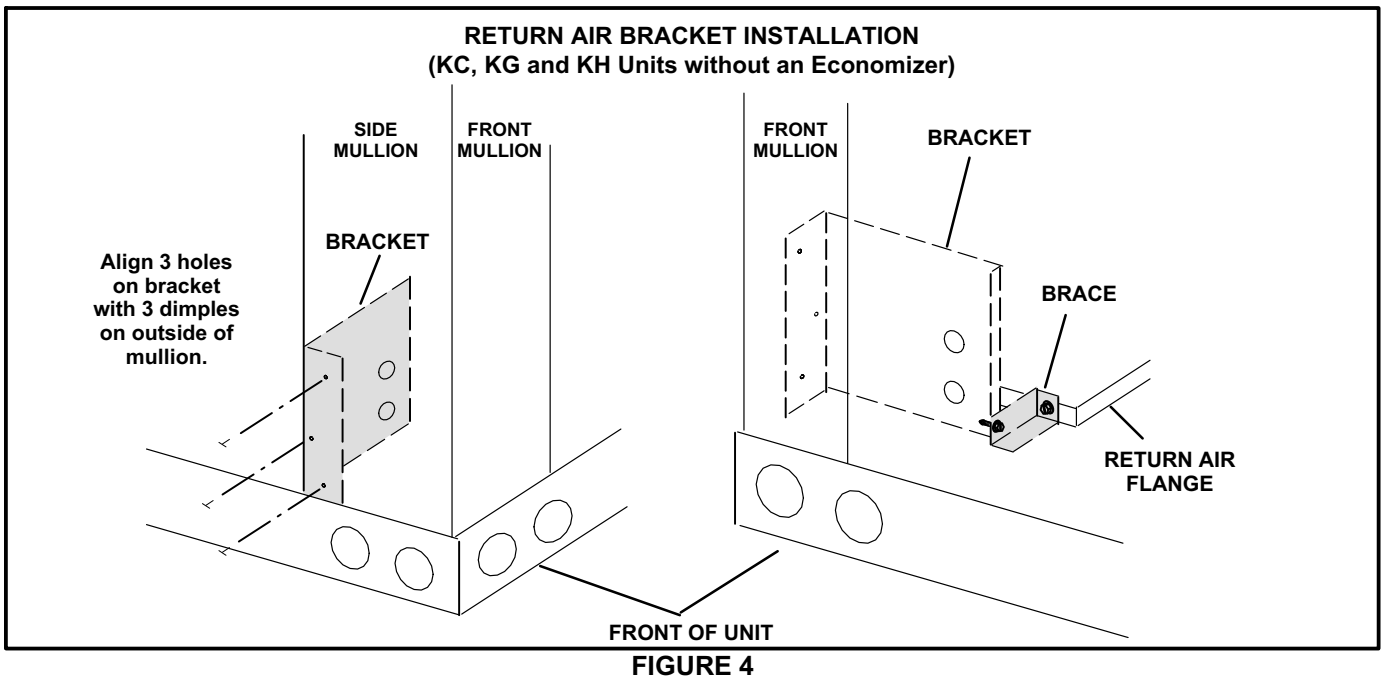


FIGURE 4

SMOKE DETECTOR COMPONENT LOCATIONS
(LCM, LGM, LCH and LGH Units without an Economizer)

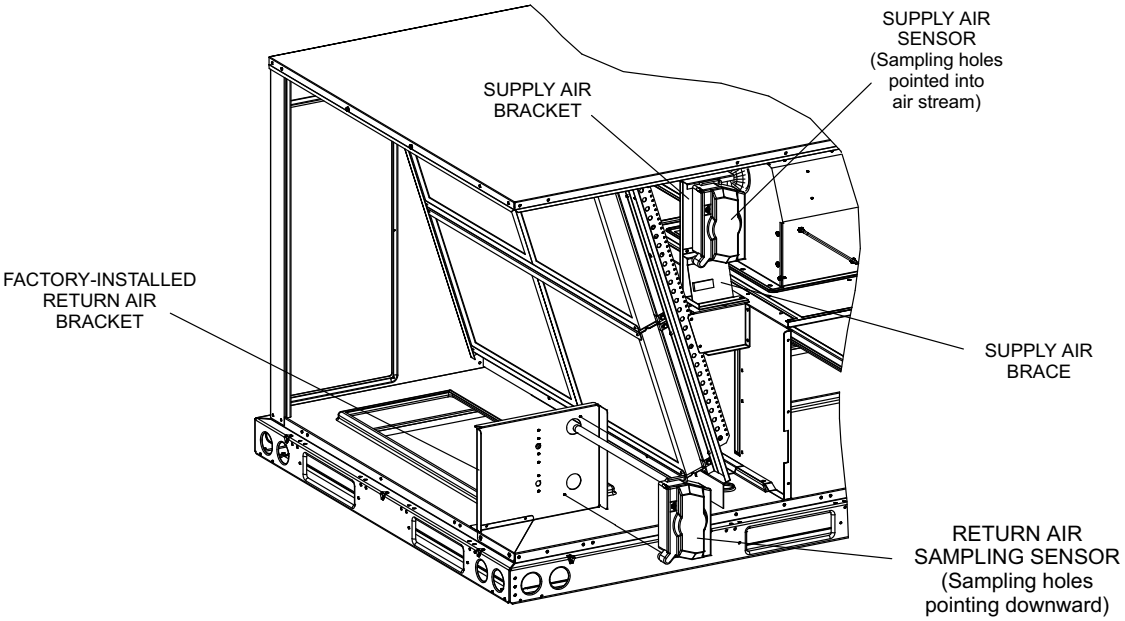


FIGURE 5

SMOKE DETECTOR SENSOR WITH SAMPLING TUBE AND EXHAUST TUBE

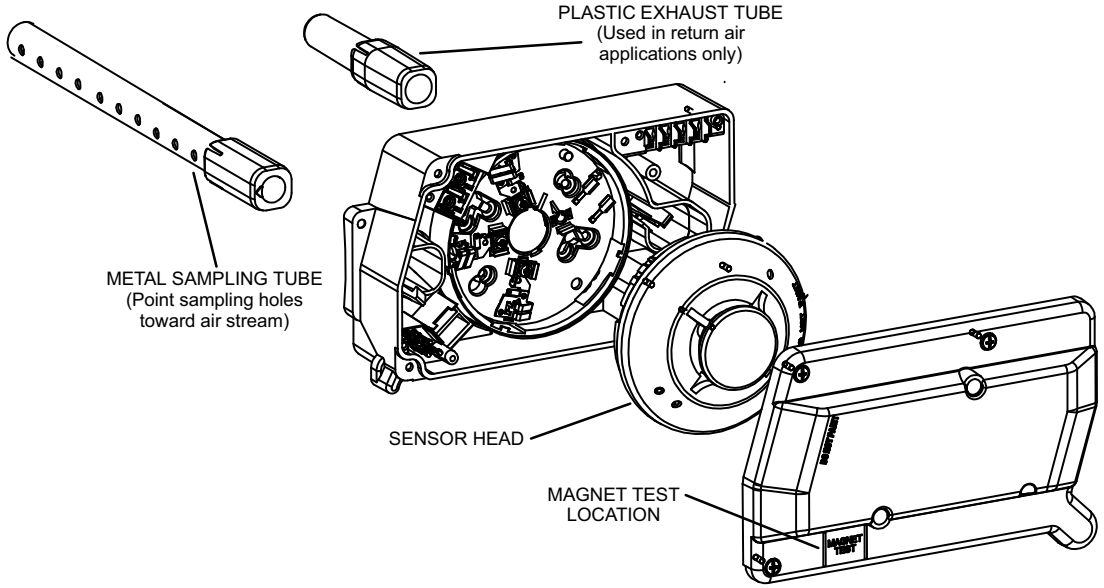


FIGURE 6

KC, KG & KH CONTROLS AREA

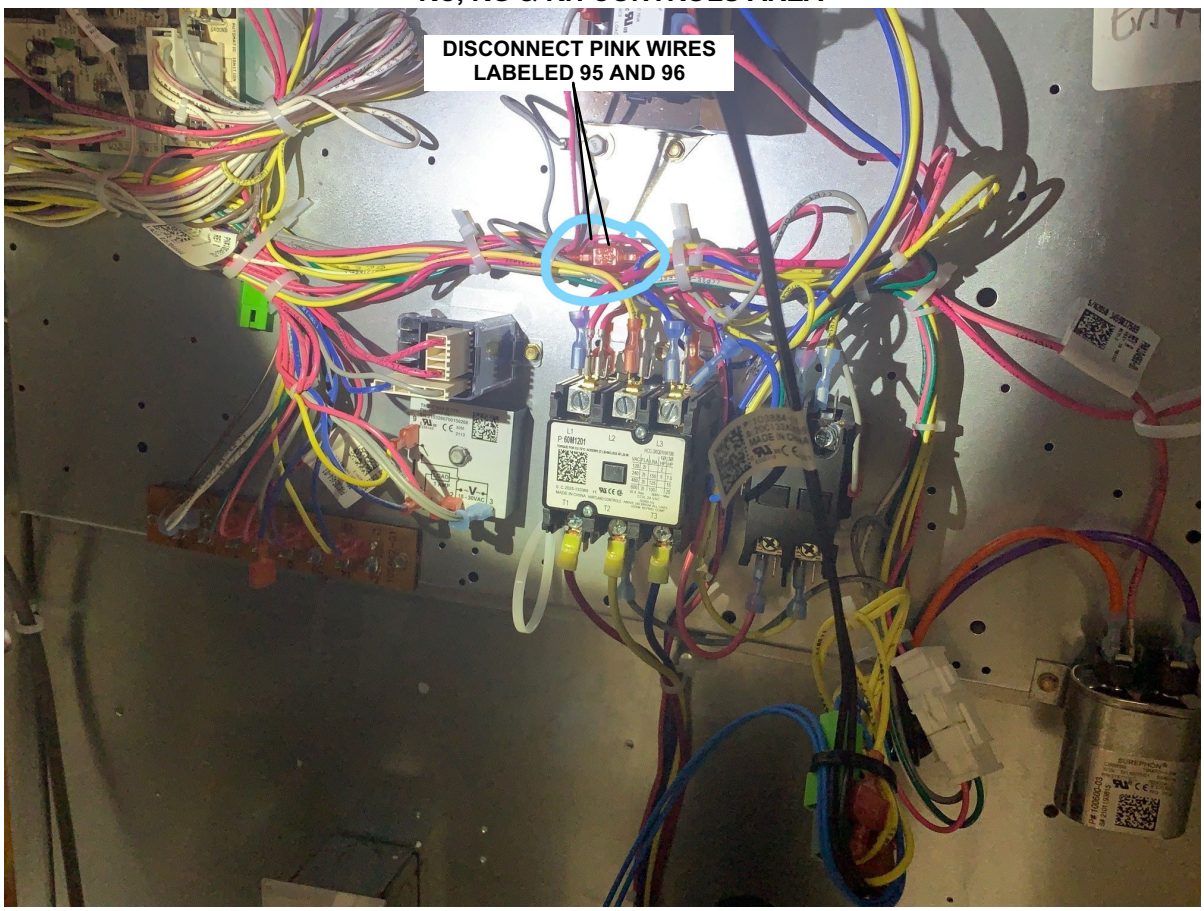


FIGURE 7

Wiring - KG/KC/KH Units

1 - Locate and disconnect pink wires labeled 95 and 96 in the control area above compressor. See figure 7.

2 - Connect wires labeled 95, 96 and TB1-C from the kit harness to wires labeled 95, 96 and TB1-C in unit.

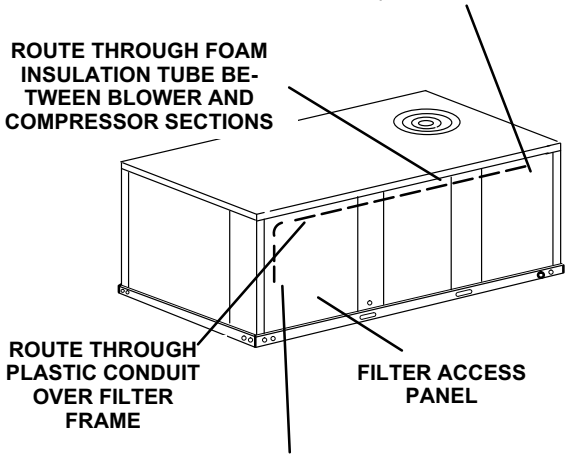
3 - Route harness wires to the top of the unit. Secure to existing bundle of wires and route to control area above compressor. See figure 8. Make sure wires are secured away from other components.

4 - Make jack/plug connections as shown in figure 9 when installing return air smoke detector only, figure 10 when installing supply air smoke detector only, and figure 11 when installing both supply and return air smoke detectors. Refer to respective wiring diagrams in figure 12, 13 and 14.

NOTE - In single-sensor applications, the wiring harness is sized for return air applications. There will be excess wiring in supply air applications. Gather excess wire and secure away from other components.

WIRE ROUTING KG, KC & KH UNITS

Connect J255 and P250 harnesses to power board P255 and J250. On dual sensor applications, also connect P252 harness to power board J252.



Connect P251 harness to RA sensor J251 **OR** SA sensor J253. On dual sensor applications, connect RA P251 harness to RA sensor J251 **AND** P253 harness to J253 SA sensor.

Note - Harness routing also applies to LGH/ LCH units in supply air only applications. Refer to “Wiring - LGH/LCH Units” section.

FIGURE 8

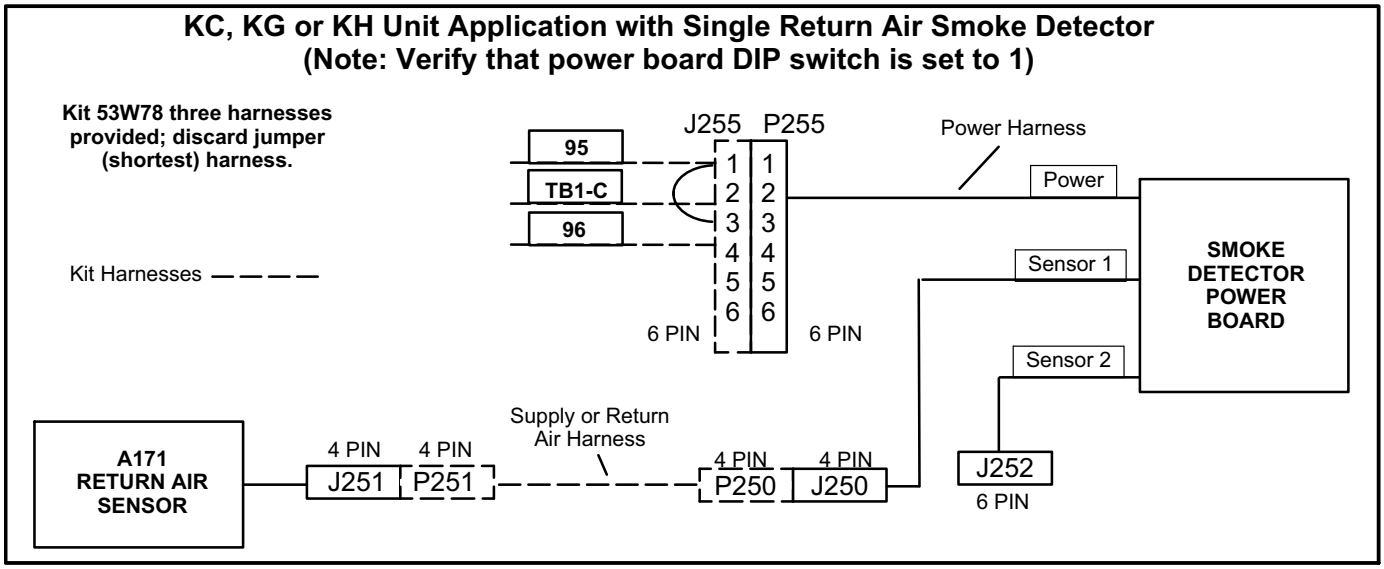


FIGURE 9

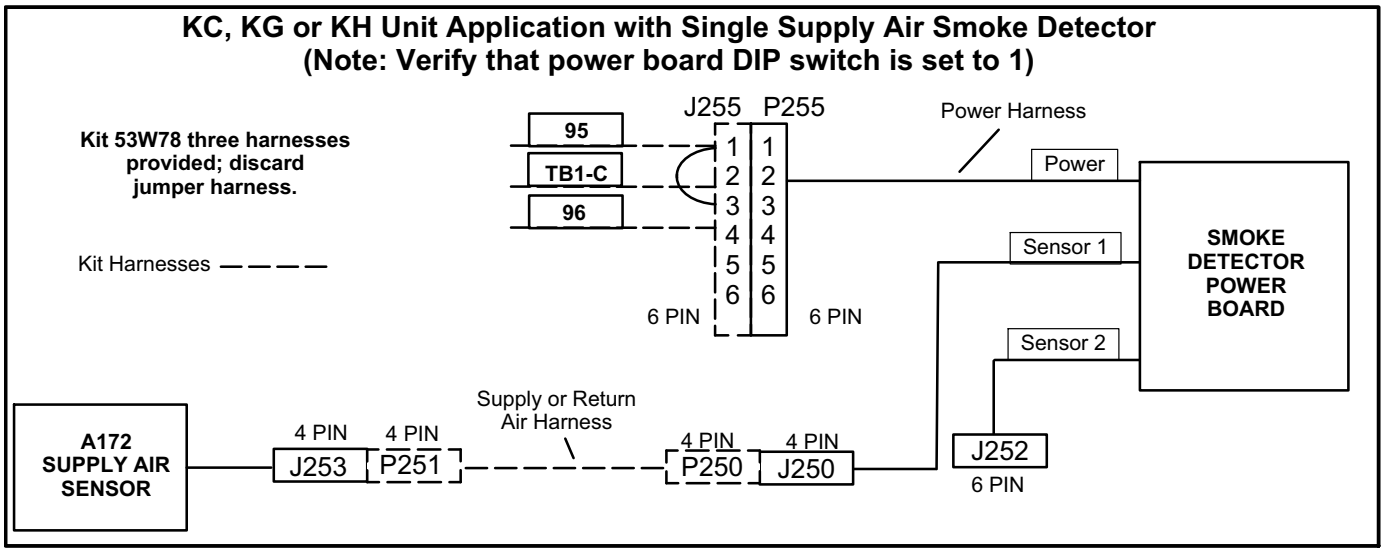


FIGURE 10

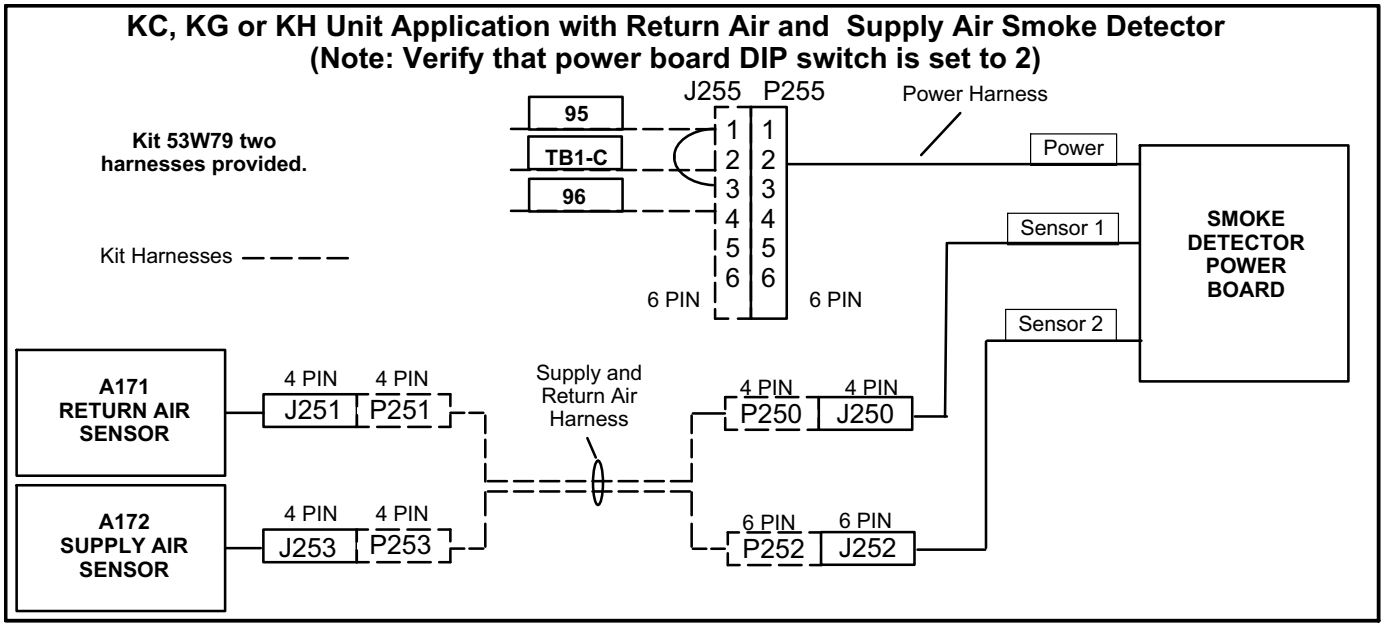


FIGURE 11

KG/KC/KH SMOKE DETECTOR WIRING - RETURN AIR ONLY
(refer to unit "B" section wiring diagram)

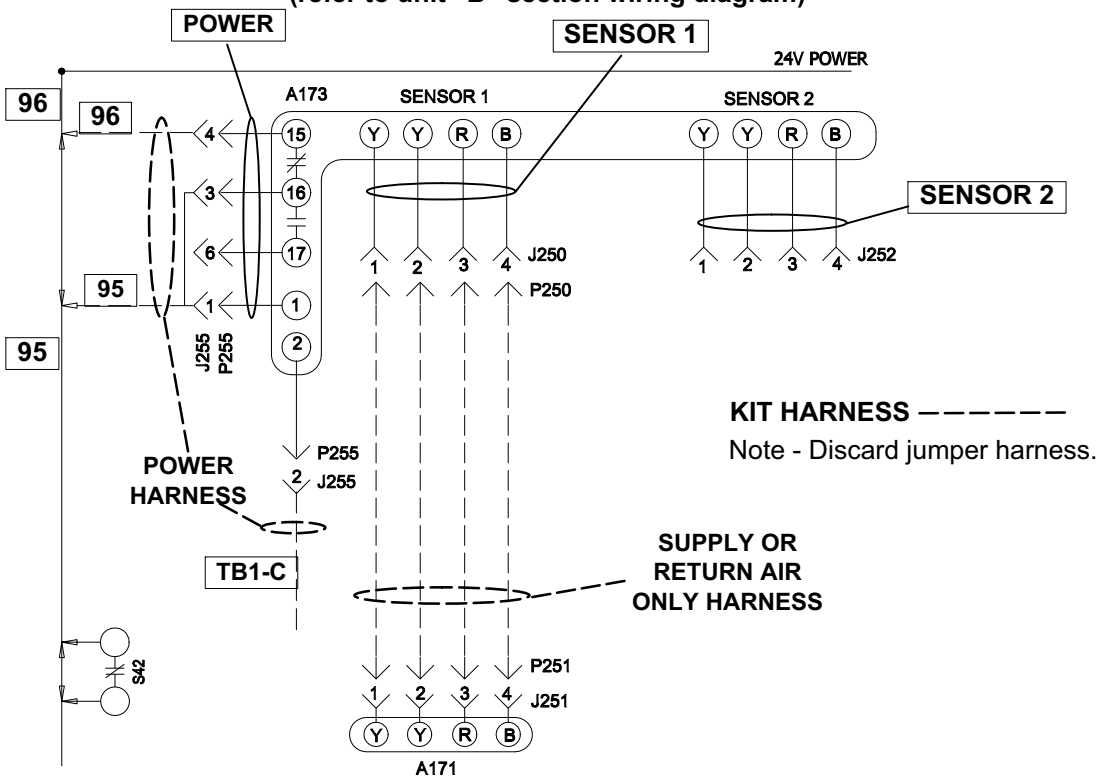


FIGURE 12

KG/KC/KH SMOKE DETECTOR WIRING - SUPPLY AIR ONLY
(refer to unit "B" section wiring diagram)

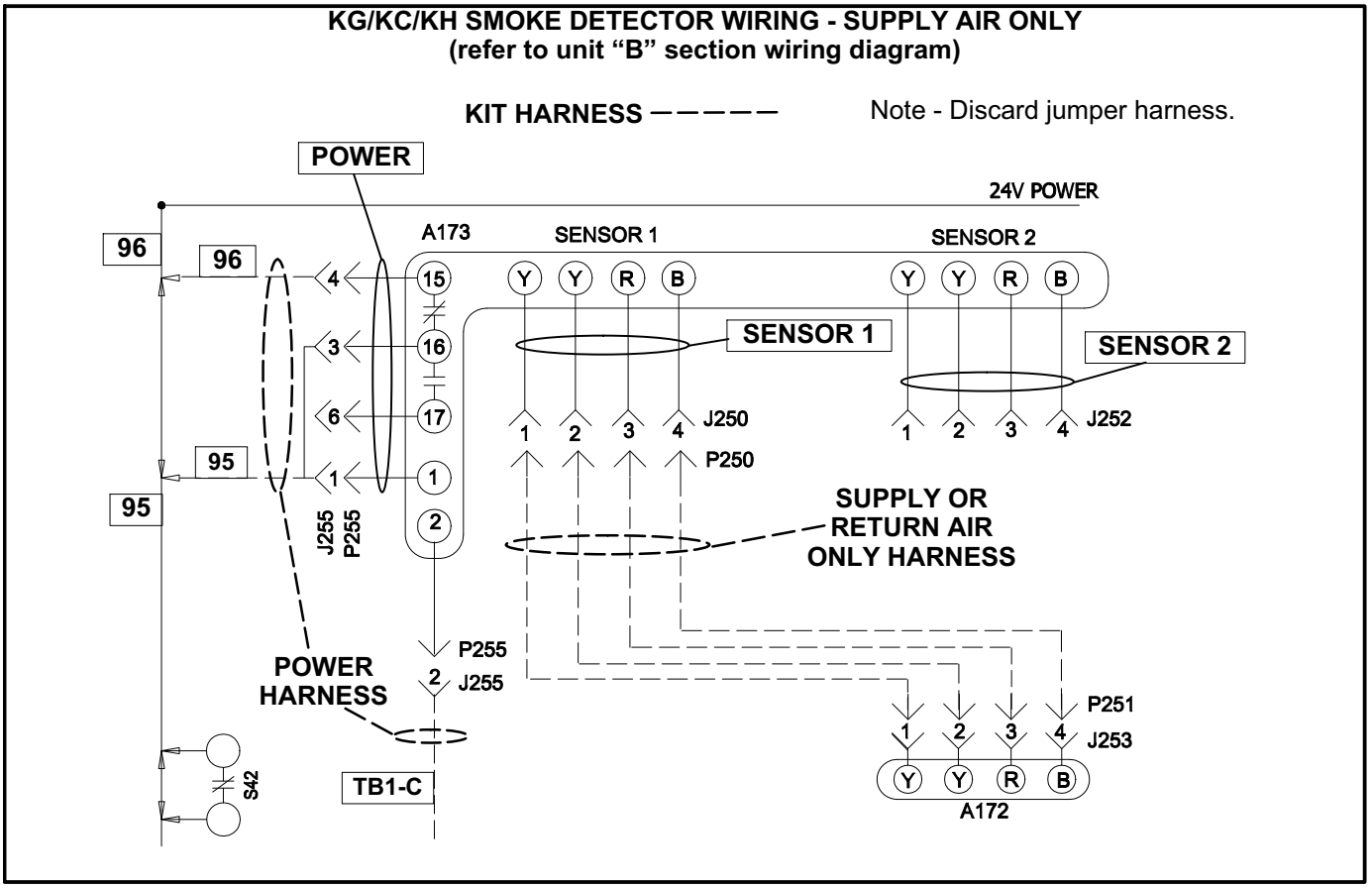


FIGURE 13

KG/KC/KH SMOKE DETECTOR WIRING - SUPPLY AND RETURN AIR
(refer to unit "B" section wiring diagram)

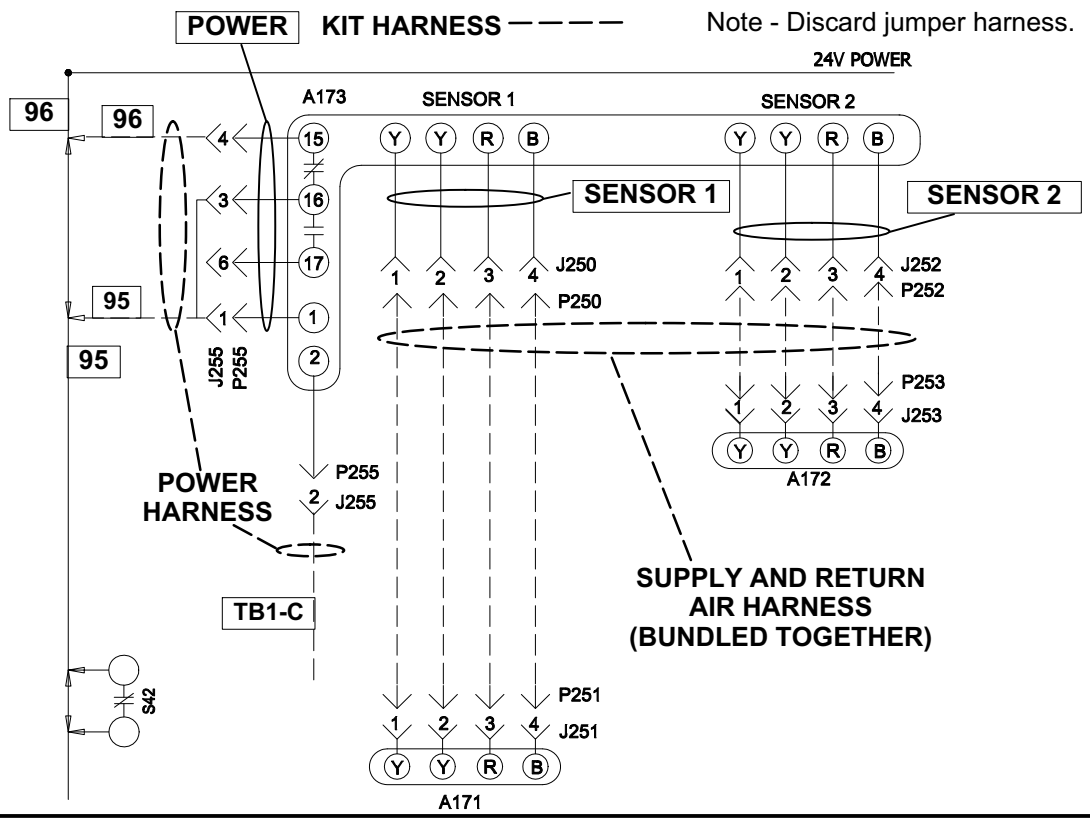


FIGURE 14

Wiring - LGH & LCH Units

Make jack/plug connections as shown in figure 15 when installing return air smoke detector only, figure 16 when installing supply air smoke detector only and figure 17 when installing both supply and return air smoke detectors. Refer to wiring diagrams in figure 18, 19 and 20.

The kit jumper harness is used in single supply air applications only. Route harness as shown in figure 8. Discard harnesses in other applications.

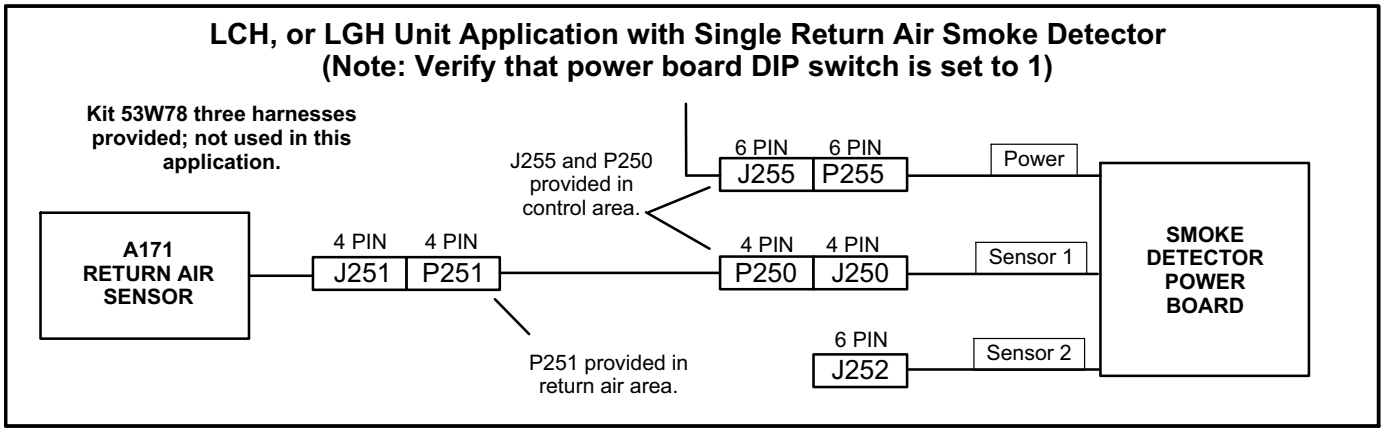


FIGURE 15

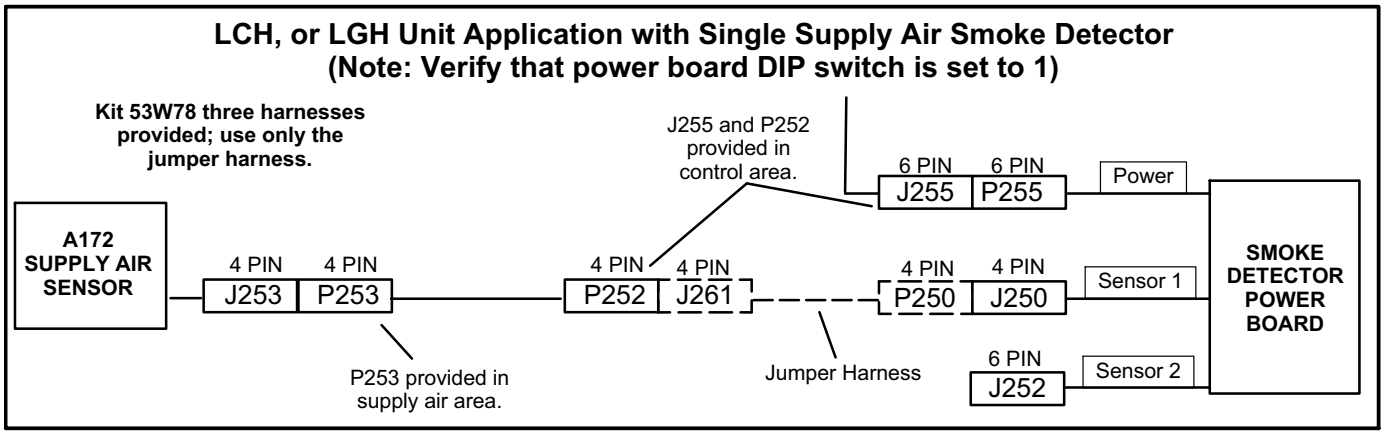


FIGURE 16

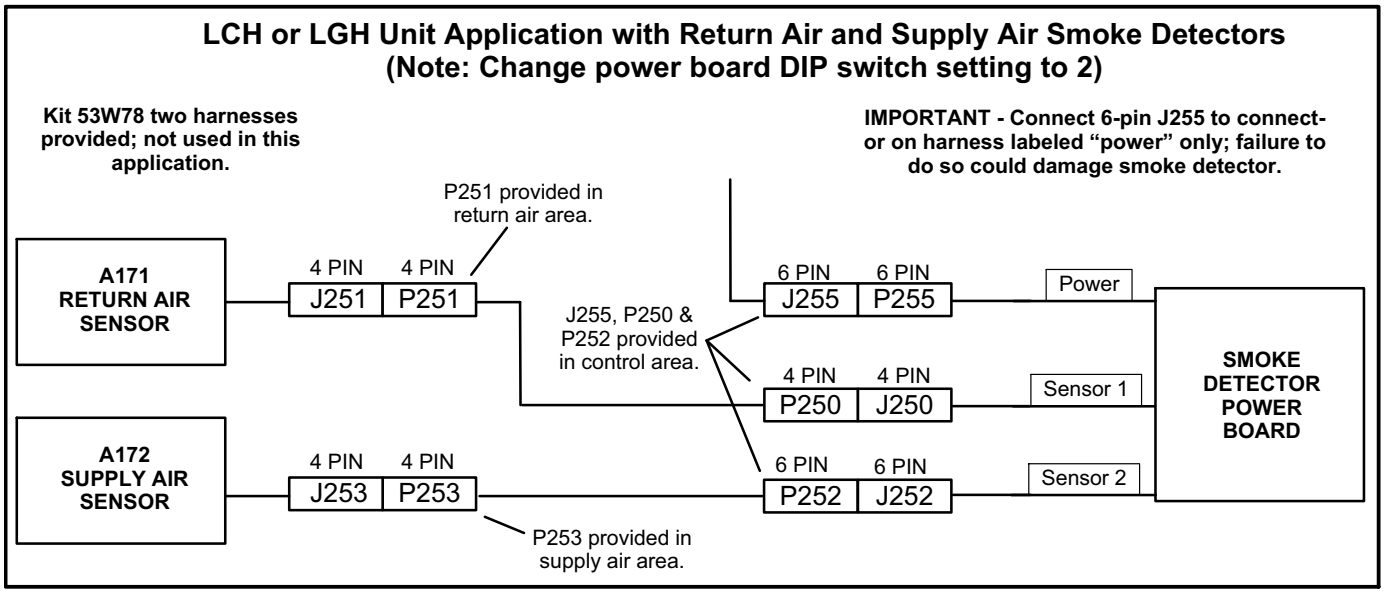


FIGURE 17

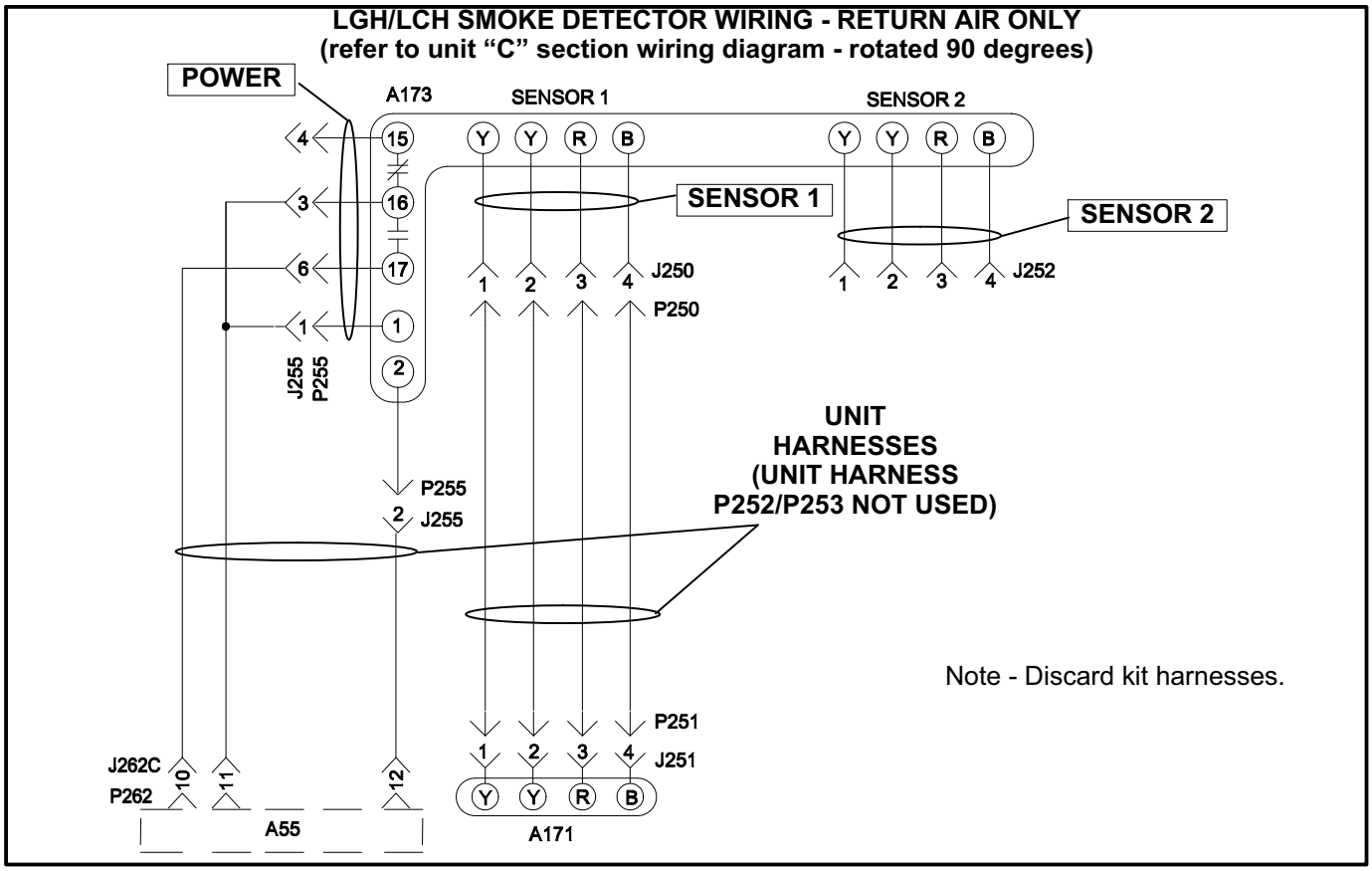


FIGURE 18

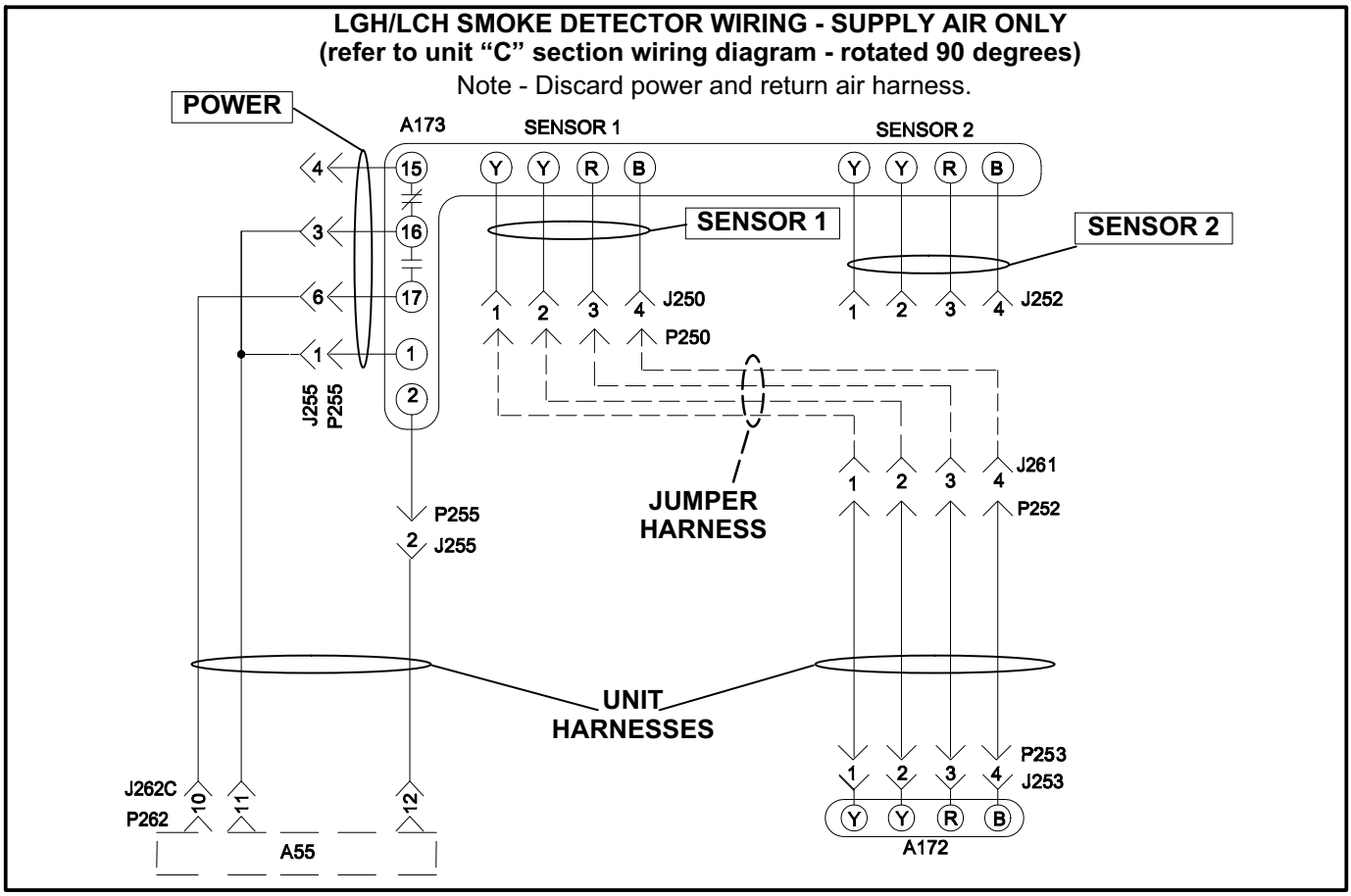


FIGURE 19

LGH/LCH SMOKE DETECTOR WIRING - SUPPLY AND RETURN AIR
(refer to unit "C" section wiring diagram - rotated 90 degrees)

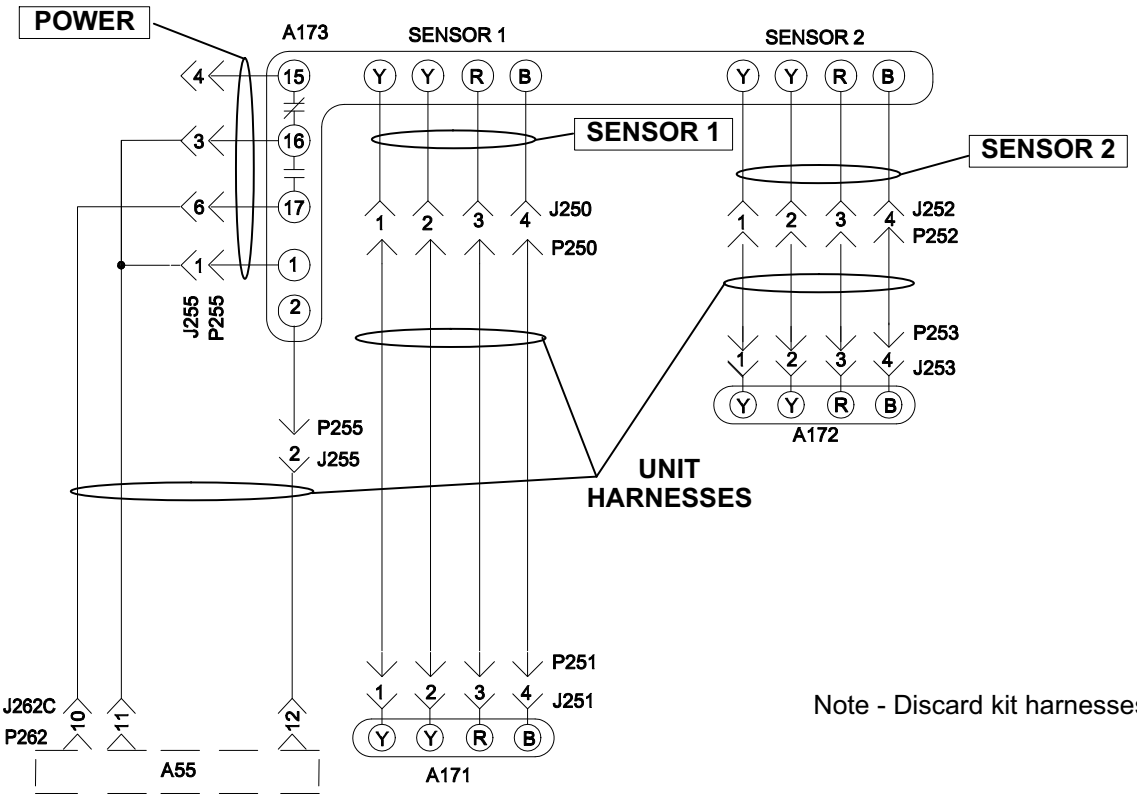


FIGURE 20

Wiring - LGM, LCM Units

Make jack/plug connections as shown in figure 21 when installing return air smoke detector only, figure 22 when installing supply air smoke detector only and figure 23 when installing both supply and return air smoke detectors. Refer to wiring diagrams in figure 24.

The kit jumper harness is used in single supply air applications only. Route harness as shown in figure 8. Discard harnesses in other applications.

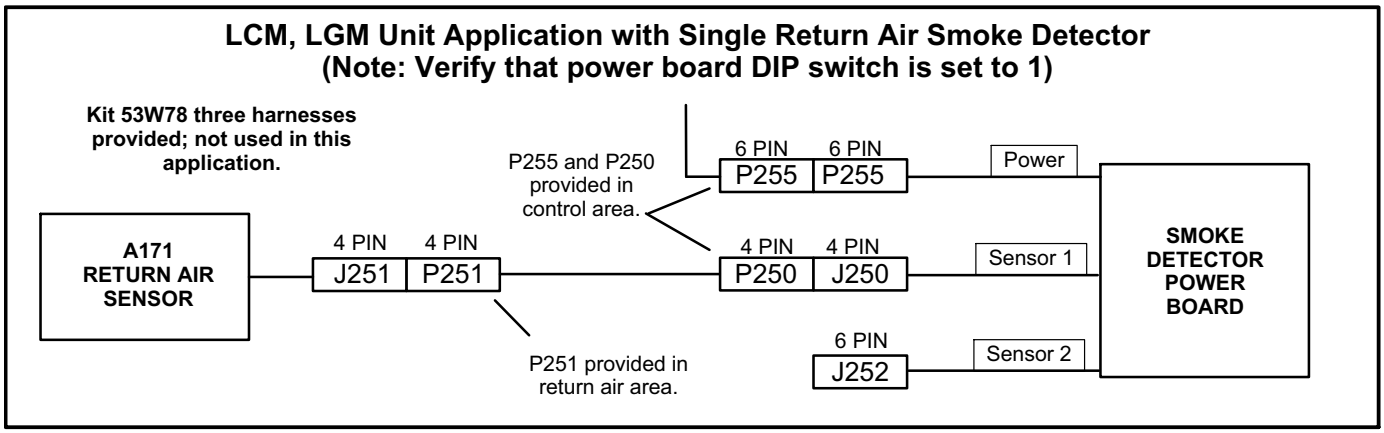


FIGURE 21

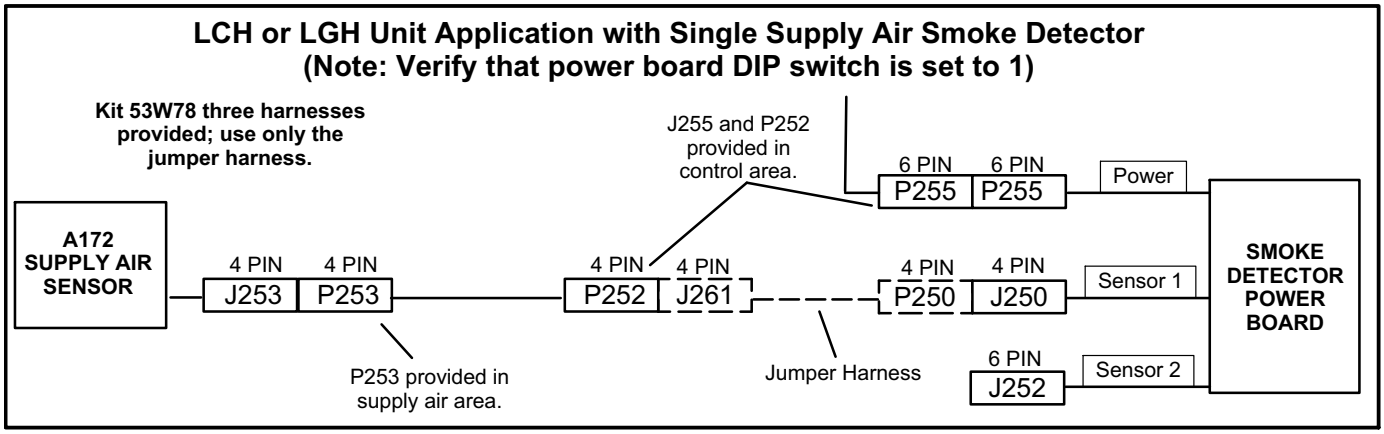


FIGURE 22

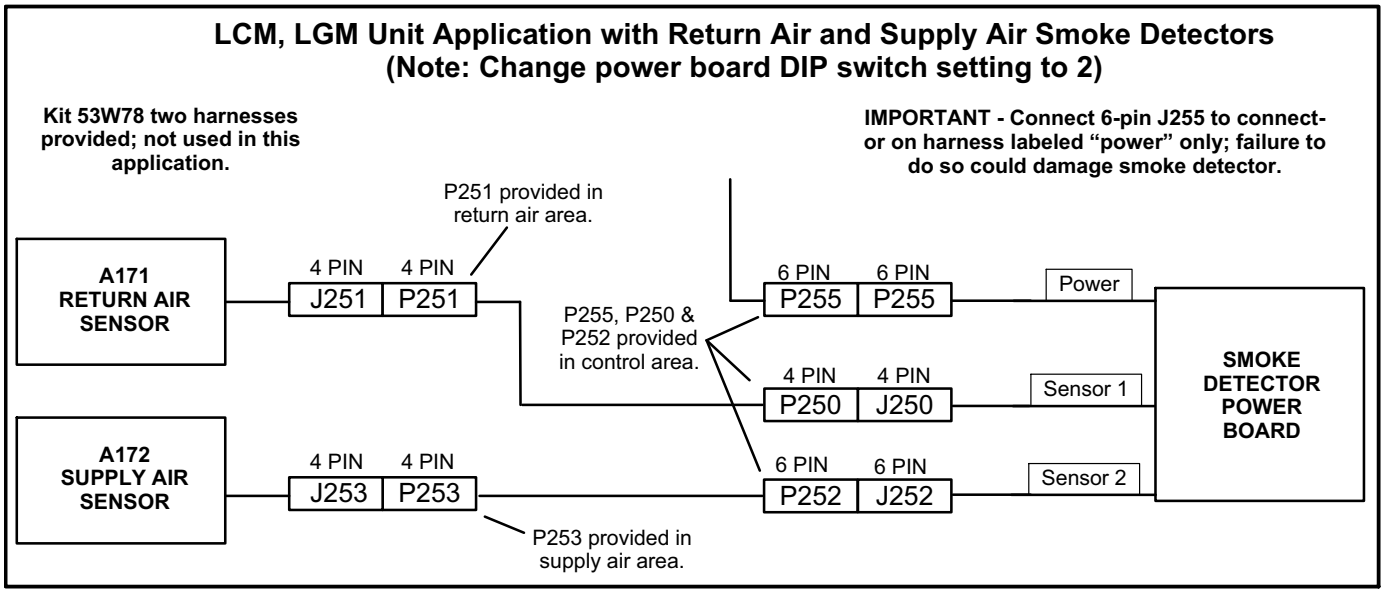
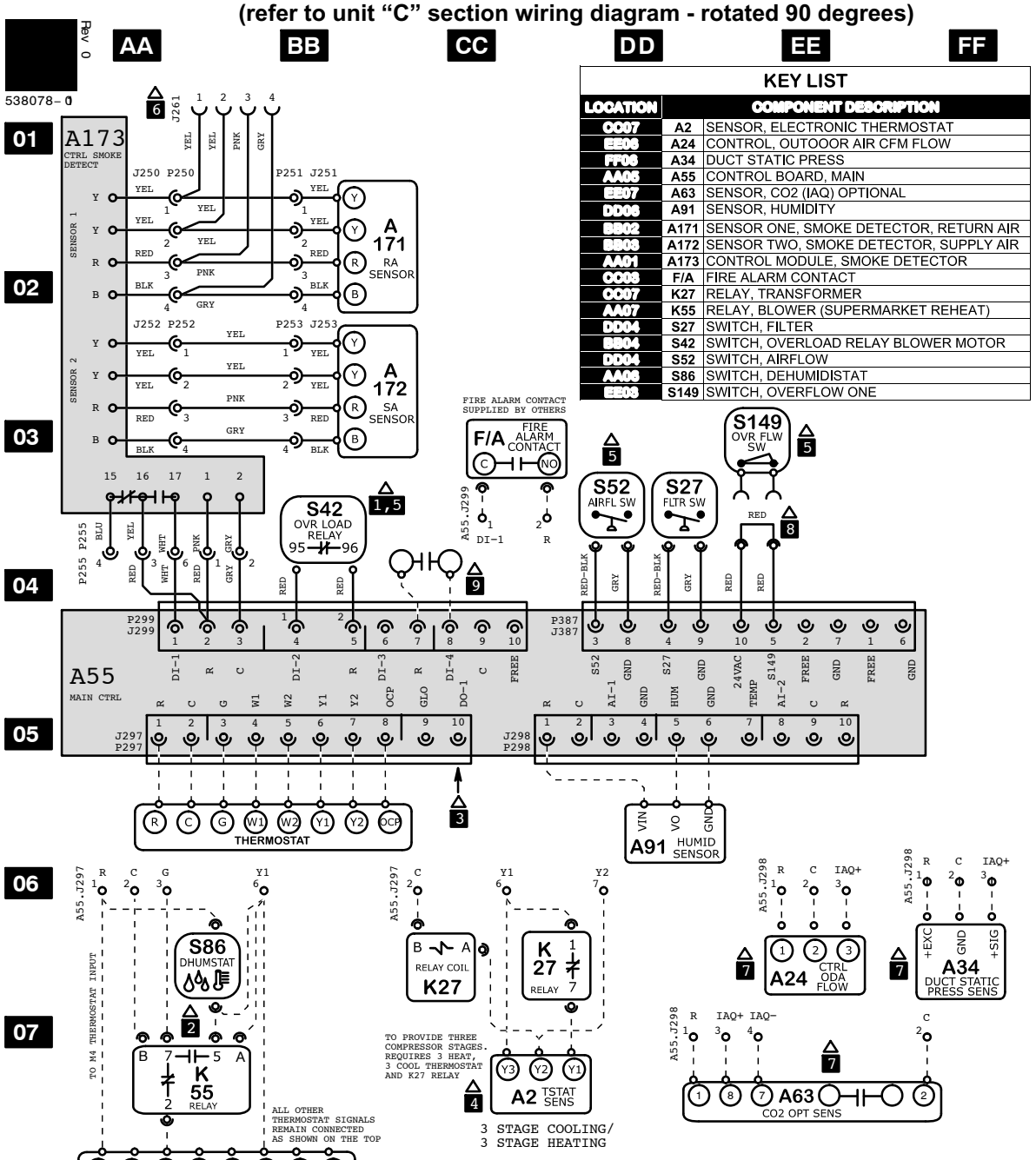


FIGURE 23

LGM/LCM SMOKE DETECTOR WIRING - SUPPLY AND RETURN AIR
(refer to unit "C" section wiring diagram - rotated 90 degrees)



KEY LIST		
LOCATION	**COMPONENT DESCRIPTION**	
CC07	A2	SENSOR, ELECTRONIC THERMOSTAT
EE06	A24	CONTROL, OUTOOOR AIR CFM FLOW
FF06	A34	DUCT STATIC PRESS
AA06	A55	CONTROL BOARD, MAIN
EE07	A63	SENSOR, CO2 (IAQ) OPTIONAL
DD06	A91	SENSOR, HUMIDITY
BB02	A171	SENSOR ONE, SMOKE DETECTOR, RETURN AIR
BB03	A172	SENSOR TWO, SMOKE DETECTOR, SUPPLY AIR
AA01	A173	CONTROL MODULE, SMOKE DETECTOR
CC08	F/A	FIRE ALARM CONTACT
CC07	K27	RELAY, TRANSFORMER
AA07	K55	RELAY, BLOWER (SUPERMARKET REHEAT)
DD04	S27	SWITCH, FILTER
BB04	S42	SWITCH, OVERLOAD RELAY BLOWER MOTOR
DD04	S52	SWITCH, AIRFLOW
AA06	S86	SWITCH, DEHUMIDISTAT
EE08	S149	SWITCH, OVERFLOW ONE

△	NOTES
1	FOR MOTORS WITH S42 EXTERNAL OVERLOAD LESS INVERTER, SEE INVERTER WITH BY PASS FOR S42 HOOK UP
2	USE S86 DEHUMIDISTAT AND K55 FOR OPTIONAL SUPERMARKET REHEAT SCHEME, PRODIGY PARAMETERS NEED TO BE MODIFIED UNDER THE SETTINGS MENU OR VIA UC SOFTWARE FOR SIMULTANEOUS HEATING AND COOLING
3	P297-10 (SR) IS SERVICE RELAY OUTPUT (24VAC) IF USED CONNECT TO AN INDICATOR LIGHT
4	THERMOSTAT HOOKUP FOR PROGRAMMABLE CONFIGURATION OF THE BOARD (A55)
5	PRODIGY SETTINGS MUST BE MODIFIED WHEN S42, S52, S149 ARE INSTALLED
6	CONNECT P252 OF A172 SENSOR TO J261 ON SUPPLY AIR SMOKE DETECTOR ONLY
7	FROM A63, A34 & A24, ONLY ONE CAN BE USED AT A TIME
8	REMOVE JUMPER TO INSTALL S149
9	EXTERNAL HUMIDITROL CONTACTS

Model: LCM, LGM Series RTU
Thermostat
Voltage: All Voltages
Supersedes: N/A Form No: 538078-01 Rev: 0

HEATING SECTION A	COOLING SECTION B	COOLING SECTION B3	ACCS SECTION C	ACCS SECTION D

WIRING DIAGRAM FLOW

FIGURE 24

Test Magnet(s)

A test magnet is provided in a bag assembly with each sensor. Remove the magnet from the bag assembly and place it on a metal surface near the sensor. The magnet is used during test procedures.

Maintenance and Test Procedure Instructions

The sensor manufacturer's instructions, which are provided with each sensor, outline information on maintenance and test procedures. Place these instructions in the literature pouch for future reference.

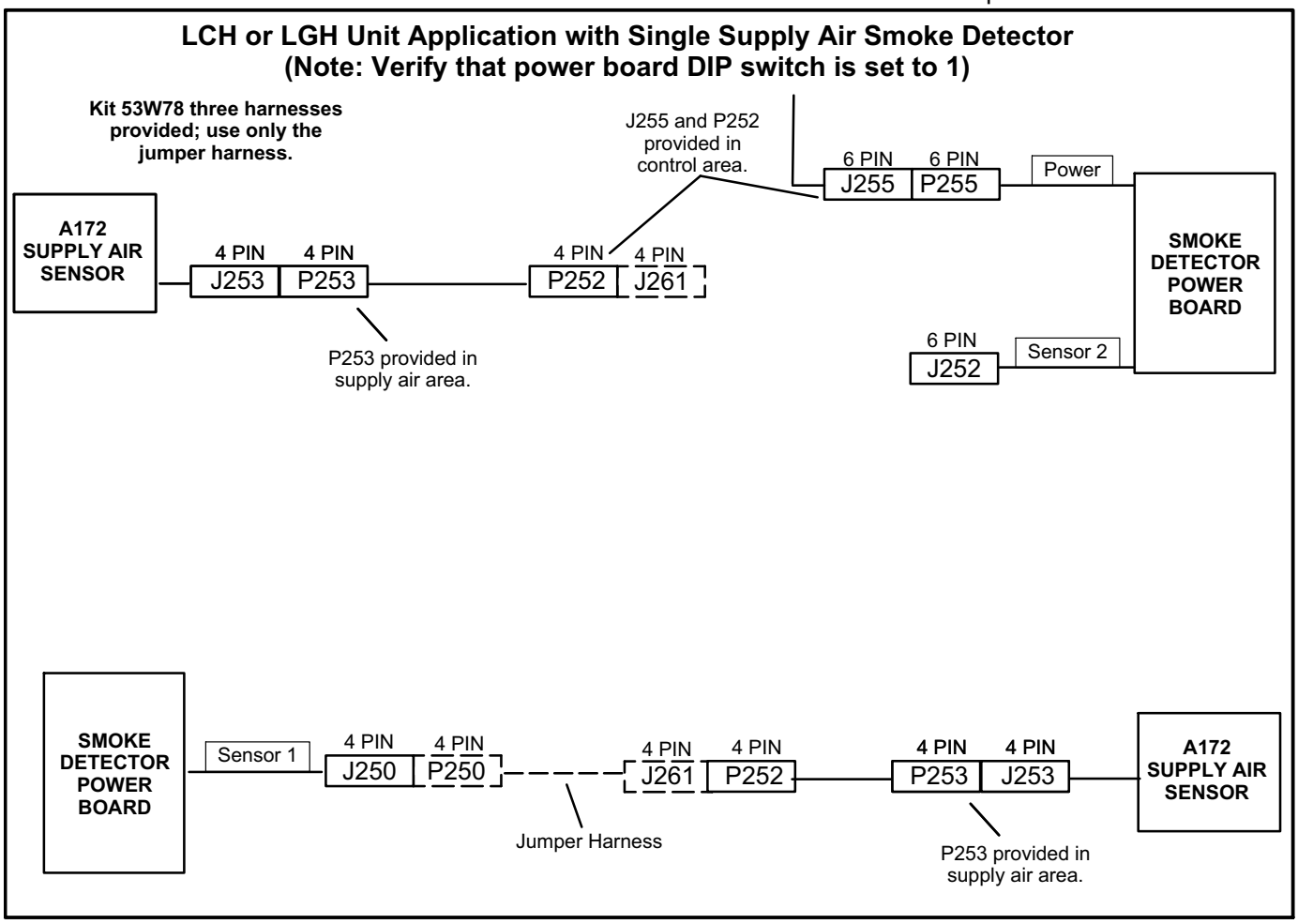


FIGURE 25